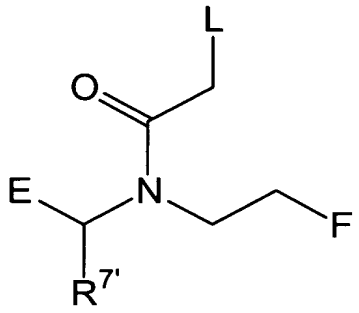
This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-7 (canceled)

8 (currently amended). The compound of claim 34 ~~1~~ having the formula:



wherein:

L is selected from the group consisting of the nucleobases thymine, adenine, cytosine, quanine, uracil, 5-methylcytosine, 6-thioquanine, 7-deazaguanine, 7-deaza-8-azaguanine, 2,6-diaminopurine, 5-bromouracil, and protected derivatives; thereof:

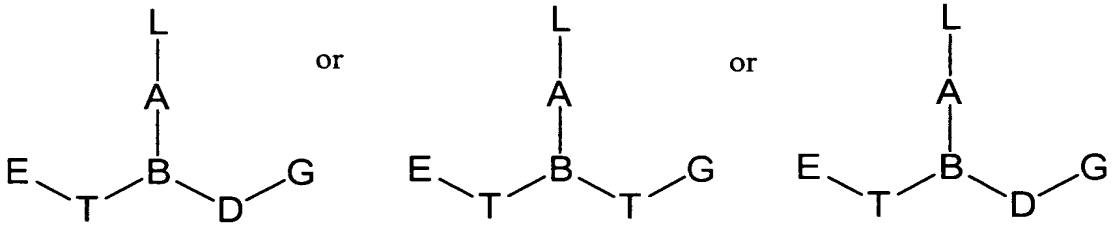
$R^{7'}$ is hydrogen;

E is SOOH or SO_2OH ~~COOH~~ or an activated or protected derivative thereof; and

F is NH_2 or NHPg, where Pg is an amino protecting group.

9-33 (canceled)

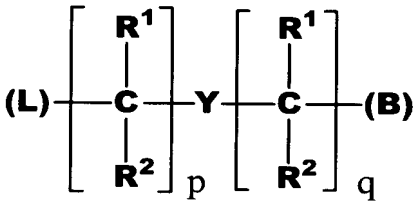
34 (new). A compound having one of the following formulas:



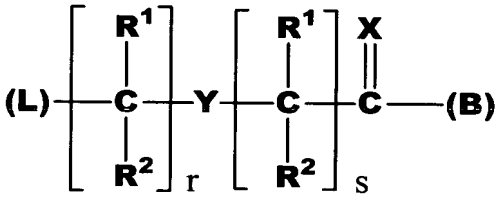
wherein:

L is a naturally occurring nucleobase, a non-naturally occurring nucleobase, a DNA intercalator, or a nucleobase binding group, and amino groups are, optionally protected by amino protecting groups;

A is a single bond or a group of the formula:



or



where:

X is O, S, Se, NR^3, CH_2 or $C(CH_3)_2$;

Y is: a single bond, O or S when s is zero; or

a single bond, O, S or NR^4 when s is an integer from 1 to 5;

each of p and q is zero or an integer from 1 to 5, the sum of p+q being not more than 10;

each of r and s is zero or an integer from 1 to 5, the sum of r+s being not more than 10;

each R^1 and R^2 is independently selected from the group consisting of hydrogen, (C_1-C_4)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio, amino and halogen; and

each R^3 and R^4 is independently selected from the group consisting of hydrogen, (C_1-C_4)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio and amino;

B is N or R^3N^+, where R^3 is defined above;

each T is CR^6R^7, CHR^6CHR^7 or $CR^6R^7CH_2$, wherein R^6 is hydrogen and R^7 is selected from the group consisting of the side chains of naturally occurring alpha amino acids other than lysine, or R^6 and R^7 are independently selected from the group consisting of hydrogen, (C_2-C_6)alkyl, aryl, aralkyl, heteroaryl, hydroxy, (C_1-C_6)alkoxy, (C_1-C_6)alkylthio, NR^3R^4 and SR^5, where R^3 and R^4 are as defined above, and R^5 is hydrogen or (C_1-C_6)alkyl, hydroxy-, alkoxy-, or alkylthio- substituted (C_1-C_6)alkyl, or R^6 and R^7 taken together complete an alicyclic or heterocyclic system;

D is CR^6R^7, $CH_2CR^6R^7$ or CHR^6CHR^7, where R^6 and R^7 are as defined above;

each E is, independently SOOH or SO_2OH, or an activated or protected derivative thereof; and

each G is, independently, NHR^3 or $NPgR^3$, where R^3 is as defined above, and Pg is an amino protecting group.

35 (new). The compound of claim 34 wherein L is a naturally occurring nucleobase or a non-naturally occurring nucleobase.

36 (new). The compound of claim 8, wherein Pg is tertbutyloxycarbonyl or 9-fluorenylmethoxycarbonyl.

37 (new). The compound of claim 8, wherein L is thymine.

38 (new). The compound of claim 37, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenyl-methoxycarbonyl.

39 (new). The compound of claim 8, wherein L is adenine or a protected derivative thereof.

40 (new). The compound of claim 39, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenyl-methoxycarbonyl.

41 (new). The compound of claim 40, wherein Pg is tert-butoxonyl and adenine is protected with a benzyloxycarbonyl protecting group.

42 (new). The compound of claim 8, wherein L is cytosine of a protected derivative thereof.

43 (new). The compound of claim 42, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenyl-methoxycarbonyl.

44 (new). The compound of claim 8, wherein L is guanine or a protected derivative thereof.

45 (new). The compound of claim 44, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenylmethoxycarbonyl.

46 (new). The compound of claim 8, wherein L is uracil.

47 (new). The compound of claim 46, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenylmethoxycarbonyl.

48 (new). The compound of claim 8, wherein L is 5-methylcytosine or a protected derivative thereof.

49 (new). The compound of claim 48, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenylmethoxycarbonyl.

50 (new). The compound of claim 8, wherein L is 6-thioguanine or a protected derivative thereof.

51 (new). The compound of claim 50, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenylmethoxycarbonyl.

52 (new). The compound of claim 8, wherein L is 7-deazaguanine or a protected derivative thereof.

53 (new). The compound of claim 52, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenylmethoxycarbonyl.

54 (new). The compound of claim 8, wherein L is 7-deaza,8-azaguanine or a protected derivative thereof.

55 (new). The compound of claim 54, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenyl-methoxycarbonyl.

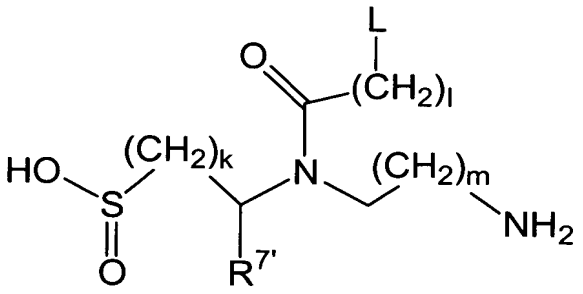
56 (new). The compound of claim 8, wherein L is 2,6-diaminopurine or a protected derivative thereof.

57 (new). The compound of claim 56, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenyl-methoxycarbonyl.

58 (new). The compound of claim 8, wherein L is 5-bromouracil.

59 (new). The compound of claim 58, wherein Pg is *tert*-butoxycarbonyl or 9-fluorenyl-methoxycarbonyl.

60 (new). The compound of claim 34 having the formula:



wherein:

L is selected from the group consisting of heterocyclic moieties, naturally occurring nucleobases, and non-naturally occurring nucleobases;

$R^{7'}$ is selected from the group consisting of hydrogen and the side chains of naturally occurring alpha amino acids other than lysine;

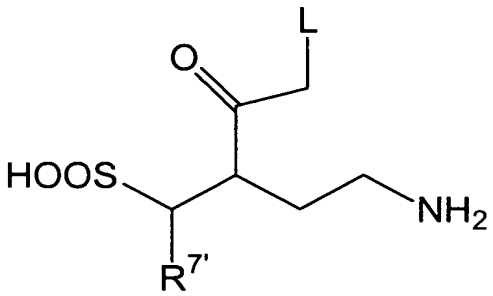
l is zero or an integer from 1 to 5; and

k and m are, independently, zero or 1.

61 (new). The compound of claim 60, wherein $R^{7'}$ is hydrogen.

62 (new). The compound of claim 61, wherein L is a naturally occurring nucleobase or a non-naturally occurring nucleobase.

63 (new). A monomer synthon having the formula:



wherein $R^{7'}$ is selected from the group consisting of hydrogen and the side chains of naturally occurring amino acids other than lysine and L is selected from the group consisting of thymine, adenine, cytosine, guanine and uracil, and said monomer synthon having one of amino-protection, acid terminal activation or both amino protection and acid terminal activation.

64 (new). The monomer synthon of claim 63, wherein L is adenine or a protected derivative thereof.

65 (new). The monomer synthon of claim 63, wherein L is guanine or a protected derivative thereof.

66 (new). The monomer synthon of claim 63, wherein L is thymine.

67 (new). The monomer synthon of claim 63, wherein L is cytosine or a protected derivative thereof.

68 (new). The monomer synthon of claim 63, wherein L is uracil.

69 (new). The monomer synthon of claim 63, wherein $R^{7'}$ is hydrogen.

70 (new). The monomer synthon of claim 63, wherein $R^{7'}$ is the side chain of a naturally occurring alpha amino acid other than lysine.

71 (new). The monomer synthon of claim 69, wherein L is adenine or a protected derivative thereof.

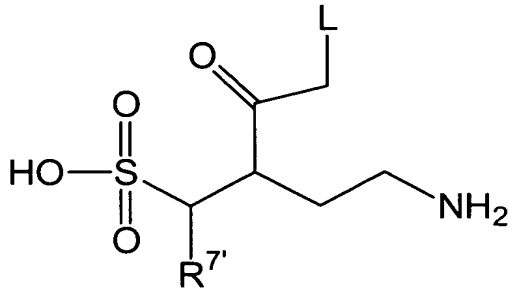
72 (new). The monomer synthon of claim 69, wherein L is guanine or a protected derivative thereof.

73 (new). The monomer synthon of claim 69, wherein L is thymine.

74 (new). The monomer synthon of claim 69, wherein L is cytosine or a protected derivative thereof.

75 (new). The monomer synthon of claim 69, wherein L is uracil.

76 (new). A monomer synthon having the formula:



wherein $R^{7'}$ is selected from the group consisting of hydrogen and the side chains of naturally occurring amino acids other than lysine and L is selected from the group consisting of thymine, adenine, cytosine, guanine and uracil, and said monomer synthon having one of amino-protection, acid terminal activation or both amino protection and acid terminal activation.

77 (new). The monomer synthon of claim 76, wherein L is adenine or a protected derivative thereof.

78 (new). The monomer synthon of claim 76, wherein L is guanine or a protected derivative thereof.

79 (new). The monomer synthon of claim 76, wherein L is thymine.

80 (new). The monomer synthon of claim 76, wherein L is cytosine or a protected derivative thereof.

81 (new). The monomer synthon of claim 76, wherein L is uracil.

82 (new). The monomer synthon of claim 76, wherein $R^{7'}$ is hydrogen.

83 (new). The monomer synthon of claim 76, wherein $R^{7'}$ is the side chain of a naturally occurring alpha amino acid other than lysine.

84 (new). The monomer synthon of claim 82, wherein L is adenine or a protected derivative thereof.

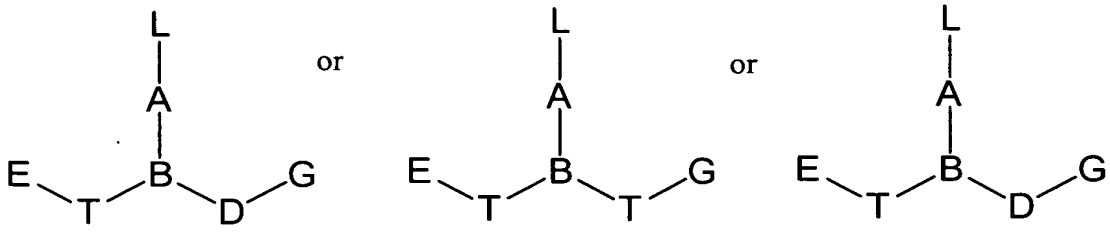
85 (new). The monomer synthon of claim 82, wherein L is guanine or a protected derivative thereof.

86 (new). The monomer synthon of claim 82, wherein L is thymine.

87 (new). The monomer synthon of claim 82, wherein L is cytosine or a protected derivative thereof.

88 (new). The monomer synthon of claim 82, wherein L is uracil.

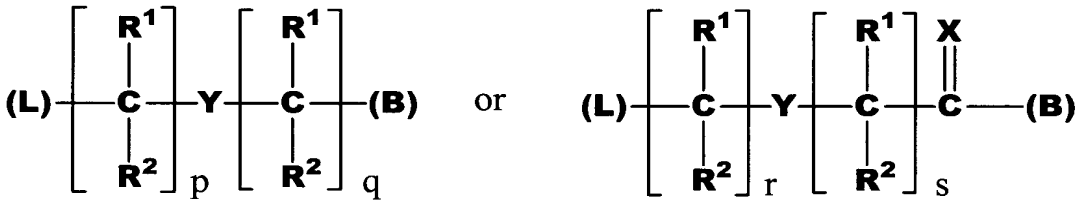
89 (new). A compound having one of the following formulas:



wherein:

L is a purine nucleobase and amino groups are, optionally protected by amino protecting groups;

A is a single bond or a group of the formula:



where:

X is O, S, Se, NR^3, CH_2 or $C(CH_3)_2$;

Y is: a single bond, O or S when s is zero; or

a single bond, O, S or NR^4 when s is an integer from 1 to 5;

each of p and q is zero or an integer from 1 to 5, the sum of p+q being not more than 10;

each of r and s is zero or an integer from 1 to 5, the sum of r+s being not more than 10;

each R^1 and R^2 is independently selected from the group consisting of hydrogen, (C_1-C_4)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio, amino and halogen; and

each R^3 and R^4 is independently selected from the group consisting of hydrogen, (C_1-C_4)alkyl; hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio and amino;

B is N or R^3N^+, where R^3 is defined above;

each T is CR^6R^7, CHR^6CHR^7 or $CR^6R^7CH_2$, wherein R^6 is hydrogen and R^7 is selected from the group consisting of the side chains of naturally occurring alpha amino acids other than lysine, or R^6 and R^7 are independently selected from the group consisting of hydrogen, $(C_2\text{-}C_6)$alkyl, aryl, aralkyl, heteroaryl, hydroxy, $(C_1\text{-}C_6)$alkoxy, $(C_1\text{-}C_6)$alkylthio, NR^3R^4 and SR^5, where R^3 and R^4 are as defined above, and R^5 is hydrogen or $(C_1\text{-}C_6)$alkyl, hydroxy-, alkoxy-, or alkylthio- substituted $(C_1\text{-}C_6)$alkyl, or R^6 and R^7 taken together complete an alicyclic or heterocyclic system;

D is CR^6R^7, $CH_2CR^6R^7$ or CHR^6CHR^7, where R^6 and R^7 are as defined above;

each E is, independently SOOH or SO_2OH, or an activated or protected derivative thereof; and

each G is, independently, NHR^3 or $NPgR^3$, where R^3 is as defined above, and Pg is an amino protecting group.

90 (new). The compound of claim 89, wherein L is adenine or a protected derivative thereof.

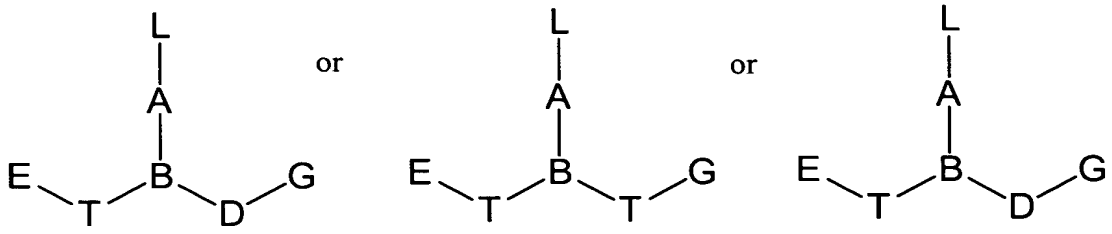
91 (new). The compound of claim 89, wherein L is guanine or a protected derivative thereof.

92 (new). The compound of claim 89, wherein L is 6-thioguanine or a protected derivative thereof.

93 (new). The compound of claim 89, wherein L is 7-deazaguanine or a protected derivative thereof.

94 (new). The compound of claim 89, wherein L is 7-deaza,8-azaguanine or a protected derivative thereof.

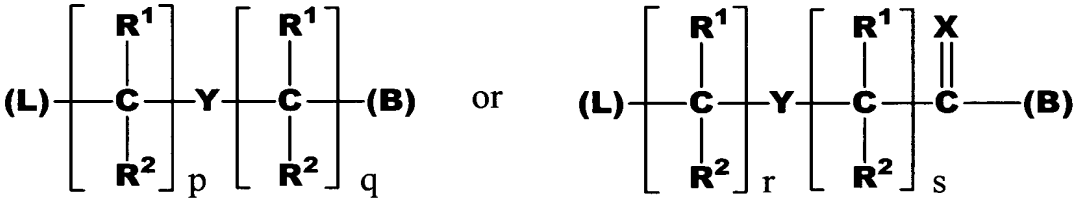
95 (new). A compound having one of the following formulas:



wherein:

L is a pyrimidine nucleobase and amino groups are, optionally protected by amino protecting groups;

A is a single bond or a group of the formula:



where:

X is O, S, Se, NR^3, CH_2 or $C(CH_3)_2$;

Y is: a single bond, O or S when s is zero; or

a single bond, O, S or NR^4 when s is an integer from 1 to 5;

each of p and q is zero or an integer from 1 to 5, the sum of p+q being not more than 10;

each of r and s is zero or an integer from 1 to 5, the sum of r+s being not more than 10;

each R^1 and R^2 is independently selected from the group consisting of hydrogen, (C_1-C_4)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio, amino and halogen; and

each R^3 and R^4 is independently selected from the group consisting of hydrogen, (C_1-C_4)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio and amino;

B is N or R^3N^+, where R^3 is defined above;

each T is CR^6R^7, CHR^6CHR^7 or $CR^6R^7CH_2$, wherein R^6 is hydrogen and R^7 is selected from the group consisting of the side chains of naturally occurring alpha amino acids other than lysine, or R^6 and R^7 are independently selected from the group

consisting of hydrogen, (C_2-C_6)alkyl, aryl, aralkyl, heteroaryl, hydroxy, (C_1-C_6)alkoxy, (C_1-C_6)alkylthio, NR^3R^4 and SR^5, where R^3 and R^4 are as defined above, and R^5 is hydrogen or (C_1-C_6)alkyl, hydroxy-, alkoxy-, or alkylthio- substituted (C_1-C_6)alkyl, or R^6 and R^7 taken together complete an alicyclic or heterocyclic system;

D is CR^6R^7, $CH_2CR^6R^7$ or CHR^6CHR^7, where R^6 and R^7 are as defined above;

each E is, independently SOOH or SO_2OH, or an activated or protected derivative thereof; and

each G is, independently, NHR^3 or $NPgR^3$, where R^3 is as defined above, and Pg is an amino protecting group.

96 (new). The compound of claim 95, wherein L is thymine.

97 (new). The compound of claim 95 wherein L is cytosine of a protected derivative thereof.

98 (new). The compound of claim 95, wherein L is uracil.

99 (new). The compound of claim 95, wherein L is 5-methylcytosine or a protected derivative thereof.

100 (new). The compound of claim 95, wherein L is 5-bromouracil.